The Contamination of Lead and cadmium in soil and Water versus Plants from Sanitary Landfill of Muang District Suphanburi Province by means of GIS

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Abstract

A study of the contamination of Lead (Pb) and (Cd) from sanitary landfill of Muang District Suphanburi Province which can pollute soil, water and plant uptake and due to greater understanding of their toxicological in ecosystems. The project was carried out in 2000 to 2002.

The experiment was carried out in sanitary landfill to monitor in soil, water and plant uptake using mass balance. The mass balance can be defined by the concentrations of the heavy metal multiplied by dry matter of plants. To monitor of Pb and Cd in ecosystem and the result show that the maximum of Pb and Cd contaminations in soil are 3.509 and 0.118mg/kg respectively. This figures show under the standard of US EPA (1983) which represent 300 and 3 mg of Pb and Cd per kg respectively. In surface water, the maximum of Pb and Cd contaminations are 5.131 and 0.565 μg of Cd per liter. In the algae from the monitoring pond, *Chara valliant* as algae has been detected the maximum of Pb and Cd contaminations which are 0.616 and 0.048 μg /kg dry matter respectively. The seasonal effect, the precipitation is the most important factor to distribute Pb and Cd particles from sanitary landfill to the environment. Pb and Cd concentrations in the surface water detected in the rainy season are higher concentration than in the dry season. The contamination direction of Pb and Cd have been displayed by means of the GIS to generate DEM. The toxic elements in the sanitary landfill showed that the micro relief of the topography has been contaminated from east south direction and should be awareness for the leachate.

Keywords: Pb and Cd Contamination, GIS